IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **BALLATO et. al**
Application Serial No.: **10/774,645**
Application Filed: **February 2, 2004**
Attorney Docket No.: **CECOM 5486**
For: **LATERAL FIELD EXCITATION OF BULK ACOUSTIC WAVES FROM AN IC-COMPLIANT LOW VOLTAGE SOURCE**

AMENDMENTS TO THE SPECIFICATION

Sir:

In accordance with the enclosed Remarks, please amend the specification in the above-identified application as follows:

Delete the paragraph at page 4, line 19 to page 5, line 6 and replace the deleted paragraph with the following replacement paragraph:

FIG'S 1A-1C are perspective, cross-sectional and exploded views of a prior art interdigital transducer;

FIG'S 2A-2F are examples prior art IDT interdigital transducer configurations;

FIG 3is a top conceptual view of the interdigital bulk acoustic-wave transducer (IBAT) of the present invention;

FIG. 4 is a graph plotting **e** along the gaps for a metallization ~~ration~~ ratio of m=1/6;

FIG. 5 is a graph plotting **e** along the gaps for a metallization ~~ration~~ ratio of m=1/2;

FIG. 6 is a graph plotting **e** along the gaps for a metallization ~~ration~~ ratio of m=2/3;

FIG'S 7A-7C are cross-sectional views of IDT electrode finger stripes deposited on a piezoelectric substrate with no dielectric coating;

FIG'S 8A-8C are cross-sectional views of IDT electrode finger stripes over-coated with an insulating dielectric in accordance with the IBAT of the present invention;

FIG'S 9A-9C are cross-sectional views of IDT electrode finger stripes over-coated

with an insulating dielectric in different configurations in accordance with the IBAT of the present invention; and

FIG'S 10A-10C are cross-sectional views of IDT electrode finger stripes over-coated with an insulating dielectric in additional configurations of the preferred embodiment in accordance with the IBAT of the present invention.

Delete the paragraph at page 10, line 27 to page 11, line 9 and replace the deleted paragraph with the following replacement paragraph:

Referring back to FIG. 3, electrode edges 46, 47, 48 and 49 are shown for illustrative purposes in conjunction with the period comprising IDT electrode fingers 33 and 34, and electrode edges 46 and 47 of first comb finger 33 have tractions pointing in the same direction; and electrode edges 48 and 49 of the second comb finger 34 have tractions pointing in the opposite direction. Metallic fingers constituting the IDT electrodes have thicknesses usually about 100 nanometers (1000Å); thinner electrodes would produce unacceptably high electrical resistance and thicker ones would produce undesired mass loading effects. Electrodes of this thickness produce quite high electric field concentrations at their edges, as seen in FIG. 4. At times, the fields can be high enough to produce migration of the aluminum constituting the IDT electrode fingers, or even cause dielectric breakdown. Introduction of copper doping reduces the aluminum migration. A relatively small number of electrode edges are depicted in FIG. 3 for the sake of clarity, however the devices of the present invention would ordinarily include hundreds of IDT fingers with numerous electrode edges.